

City of Bellevue

**East Link Light Rail B7/C9T to  
NE 2nd Portal (B7 – Revised)  
Alternative**

**TM05 – A-2 Station Cost Estimate**

215382/TM05

Final | June 2011

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

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# 1 Executive Summary

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The South Bellevue Station Alternative Location Analysis (SBSALA) completed in July 2010, for the City of Bellevue by KPFF concluded that the preferred location for a station on Bellevue Way SE to service the B7 alternative for Sound Transit's East Link light rail extension is the A-2 option between 113th Avenue SE and Bellevue Way SE to the north of I-90.

The City of Bellevue commissioned the project team to build off this work to develop a concept design for a station as part of an assessment of the B7 revised alternative. The revised station planning and design is presented in the A-2 Station Concept Report (Technical memo TM03).

A cost estimate was prepared for the original station location analysis, and as part of the concept design, a revised cost estimate, presented here, updates the original cost estimate to reflect the more advanced design information and to be consistent with Sound Transit's cost estimating methodology.

The revised cost estimate uses as input data the cost estimate presented in the SBSALA report (July 2010), Sound Transit's cost estimating methodology used for the DEIS and SDEIS, and the station concept and plans presented in the A-2 Station Concept Report (TM03). The revised estimate is calculated in third quarter 2007 dollars, to be consistent with the base year estimate that Sound Transit used in the original estimate. RoW costs are presented in 2007 dollars and are provided by Sound Transit.

The elements of the revised A-2 Station considered herein are light rail platforms, a bus transit station, and a four-story parking garage for 1,450 cars. Pedestrian connections, including vertical circulation and a pedestrian bridge, are included in the estimate. Vehicle road construction and modification, retaining walls, and earthworks, such as a significant excavation on the hillside, are also included.

Arup's revised cost estimate is consistent with Sound Transit's cost estimating methodology. Unit costs used by Arup are Sound Transit's composite unit costs, derived from their unit cost report. Quantification is from Arup's drawings.

**Key Findings**

- The Arup estimated total project cost for the B7-Revised A-2 Station is \$204.01m; SBSALA's cost estimate is \$165.01m. Arup's project cost includes a 1450-space park-and-ride building and is calculated per the Sound Transit's methodology. SBSALA's project cost includes a 1400-space park-and-ride building.
- For comparison purposes, adjusting the original SBSALA cost estimate of \$165m to follow more closely Sound Transit's methodology for the inclusion of change order contingency, for the inclusion of ROW and mitigation costs in the construction costs rather than as separate items, and for the approach to soft costs results in a revised project cost of about \$190m.

## 2 Background

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### 2.1 Project description

The East Link project is an extension to Sound Transit's Initial Segment, which will provide light rail service across Lake Washington, thus linking Seattle, Bellevue, and eventually Redmond.

For the segment of the East Link between the Lake Washington crossing and Bellevue, Sound Transit developed the B7 alternative to a conceptual engineering level of design (approximately five percent design), as part of their Draft Environmental Impact Statement (DEIS) process for the project. The DEIS was issued in December of 2008.

A Supplemental Draft EIS, which analyzes new alternatives that were developed since the DEIS, was published in November of 2010. That supplemental document includes updated conceptual engineering for the Sound Transit B7 and for a C9T alternative that connects B7 to the Bellevue Transit Center. A Final EIS is expected in the spring of 2011.

At the September 13, 2010 Bellevue City Council Study Session, the council discussed the need for design variations and additional analysis of the East Link B7/C9T alternative. The objectives of the additional analysis would be to improve performance, to reduce impacts, and to reduce costs relative to the Sound Transit B7/C9T alternative. The council is also interested in developing a modified B7 alternative ("B7-Revised") that compares favorably in terms of performance and costs with the Sound Transit Board's adopted B2 (Modified) alternative. The council directed city staff to return with an "apples-to-apples" comparison of the Sound Transit B7/C9T alternative with a B7-Revised alternative.

The B7-Revised alternative would commence at the transition from the East Link A segment to the B segment at the east shore of Lake Washington and would connect with a new station in south Bellevue, the A-2 Station. The alignment would head east from the station along the north side of I-90 from Bellevue Way and turn north into the BNSF corridor. The alignment would transition to elevated as it leaves the BNSF corridor, cross over SE 8th Street, and transition to at-grade prior to a new station (East Main Station) just south of Main Street on the current Red Lion Hotel site. The alignment would cross under Main Street and turn west on the current Sheraton Hotel site before entering a tunnel portal at NE 2nd Street. The B7-Revised alternative would be approximately three miles long with a combination of at-grade, elevated, and open cut sections.

### 2.2 Technical memo scope

The scope of this activity and this technical memo is to update the cost estimate of the A-2 Station presented in South Bellevue Station Alternative Location Analysis, completed in July of 2010, to reflect more advanced design information, while staying consistent with Sound Transit's cost estimating methodology.

This technical memo should be read in conjunction with other technical memos produced for this study, including the following:

- A-2 Station Concept Report (TM03)
- Early Cost Estimate (TM11)

## 2.3 Technical memo objectives

The objectives of this technical memo are as follows:

- Present the construction cost estimate for the A-2 Station, which forms part of the B7-Revised alternative.
- Describe the base data, assumptions, and methodology used to develop the cost estimate.
- Compare the construction cost estimate with the cost estimate presented in the Station Location Analysis Report. These are not directly comparable because of the design development of the station and differences in cost estimating approaches.

## 2.4 Key meetings and background documents

Relevant meetings for this technical memo are noted below:

Date	Meeting	Reference (Minutes)
2/17/2011	Sound Transit	Not finalized at time of submittal.
2/24/2011	City of Bellevue	Not finalized at time of submittal.
3/23/2011	City of Bellevue	Not finalized at time of submittal.
4/01/2011	Sound Transit	Not finalized at time of submittal.

Table 1 - Relevant meetings

Relevant documents and reports used to support the analysis included the following:

Document	Referred to in Technical Memo as:	Relevance to Technical Memo:
CH2MHill (February 2008). <i>Sound Transit Eastside HCT Study – Alternative Screening Evaluations-Phase 2, “Basis of Estimate for Alternative Cost comparison”</i> . Seattle, WA: Sound Transit.	Sound Transit Basis of Estimate	Provides Sound Transit costing methodology
CH2MHill (February 2008). <i>Sound Transit Eastside HCT Study – Alternative Screening Evaluations-Phase 2, “Composite Unit Cost Report”</i> . Seattle, WA: Sound Transit.	Sound Transit Unit Cost Report	Provide Sound Transit cost data
KPFF (July 2010). <i>South Bellevue Station: Alternative Location Analysis</i> . Bellevue, WA: City of Bellevue Transportation Department.	SBSALA	Provides initial A-2 Station design and cost estimate
Arup (March 2011). <i>(TM03) A-2 Station Concept Report</i> . Bellevue, WA: City of Bellevue Transportation Department.	A-2 Station Concept Report	Provides updated A-2 Station design

Table 2 - Relevant documents and reports

### 3 Methodology and data

The project team was directed by the Bellevue City Council to prepare an “apples-to-apples” comparison of the B7-Revised alternative with the B7/C9T alternative presented in the Sound Transit Draft Environmental Impact Statement (DEIS) and the Supplemental Draft Environmental Impact Statement (SDEIS).

In the case of the A-2 Station, the team was directed to update the SBSALA cost estimate while staying consistent with Sound Transit’s cost estimating methodology.

Such an assessment requires consistency of three elements: base data and information, key assumptions, and methodology. The following sections and tables outline the key aspects of the updated A-2 Station concept cost estimate. These sections assist in confirming that the the cost estimate represents an “apples-to-apples” comparison with Sound Transit’s cost estimating approach, and describes how similar elements were addressed in the SBSALA.

#### 3.1 Base data and information

<b>B7-Revised A-2 Station</b>	<b>SBSALA A-2 Station</b>	<b>“Apples-to-Apples” 1</b>	<b>Comment</b>
Sound Transit unit costs used for estimate generation	Sound Transit unit costs used for estimate generation	Yes	Consistent composite unit costs for both analyses
Work Breakdown Structure adopted – Consistent with ST and with SBSALA. Additional work elements added to the estimate were required.	Work Breakdown Structure	Yes	A-2 station design was modified; the modifications have implications for cost elements
Soft costs included per ST methodology	Soft costs included in SBSALA. RoW and mitigation soft costs are separate.	Yes	
Costs are reported in third quarter 2007 dollars	Costs are reported in third quarter 2007 dollars	Yes	
RoW costs included (provided by Sound Transit) are in 2007 dollars	RoW costs are included (provided by the city of Bellevue) in July, 2010 dollars	Yes	RoW costs are also presented in TM08

Note 1 – The “apples-to-apples” comparison here is with the base data and information used by the project team to generate the A-2 Station cost estimate. The SBSALA base data and information is included for reference only with no comment as to whether this is “Apples-to-apples” with Sound Transit base data and information.

Table 3 - Comparison with Sound Transit DEIS and SDEIS base data and information

Table 3 compares the Arup, Sound Transit, and SBSALA input information. Base data and information other than those mentioned in the table are comparable to those presented in the SBSALA.

To facilitate comparison, Sound Transit’s unit costs are used in the revised estimate. In cases where new elements have been added to the Work Breakdown Structure (WBS) because of design updates, costs are calculated with current dollars and then adjusted using the RS Means Construction Cost Index for Seattle. Costs are calculated from RS Means and WSDOT data and checked with Arup projects cost data.

A-2 Station (B7-Revised) costs are based on quantities from the design in TM03.

This revised cost estimate is based on Sound Transit’s memorandum titled “Sound Transit Eastside HCT Study –Alternative Screening Evaluations–Phase 2, Basis of Estimate for Alternative Cost Comparison”.

### 3.2 Key assumptions

B7-Revised A-2 Station	SBSALA A-2 Station	“Apples-to-Apples” 1	Comment
Demolition is considered for 13 units	Demolition is considered for 13 units	Yes	Both designs have the same footprint, so demolition is similar
Arup used the same assumptions as SBSALA for utility modification costs.	SBSALA based utility modification costs on assumptions listed in their cost estimating methodology	Yes	Both designs have the same footprint, so utility modifications costs are similar
Variable contingency, design allowance average 21% and allocated contingency average 16%	Constant contingency of 40% is applied	Yes	Arup follows ST’s methodology of using variable contingency in the A-2 cost estimate.
Change order contingency of 10% applied	Not applied	Yes	
Estimating Methodology	Same	Yes	Consistent methodology for both alternatives
Soft costs are calculated according to Sound Transit’s methodology, including unallocated contingency	Unallocated contingency is excluded. Also, agency administration fees exclude construction and RoW costs unlike ST.	Yes	Arup follows ST’s methodology of including 10% unallocated contingency with soft costs.

Note 1 – The “apples-to-apples” comparison here is with the base data and information used by the project team to generate the A-2 Station cost estimate. The SBSALA key assumptions and methodology is included for reference only with no comment as to whether this is “Apples-to-apples” with Sound Transit key assumptions.

Table 4 - Comparison with Sound Transit DEIS and SDEIS key assumptions

### 3.2.1 Consistency with Sound Transit

The project team's assumptions for station costing are consistent with Sound Transit's. These assumptions are as follows:

- The general contractor will work a standard 40-hour week.
- Costs are based on a design–bid–build contract
- A 9.5% sales tax rate is applied to material, equipment, and subcontract costs
- Shoring for open excavations is soldier pile with timber lagging and tiebacks
- No costs are included for cleanup of source sites.
- Abatement and remediation prior to demolition are not included.
- 1% artwork allowance is applied to Standard Cost Categories (SCC) 10 through 50
- The design allowance used in Sound Transit's estimate ranges from 20% to 25%, with the average being about 21 %. Also, ST applies an Allocated Contingency to the base cost after the design allowance is added. The Allocated Contingency ranges from 10% to 50%, with the average being about 16 %. This markup is for potential risks of unknowns associated at this level of design. It also considers unforeseen conditions during construction. The project team uses the same approach for allowances and contingencies as ST does. However, SBSALA uses a constant contingency of 40%. The difference in variable and constant contingencies yields difference in costs.
- Change order contingency (10%) is calculated over the construction cost without the RoW. This added to the construction cost without the RoW gives the total construction cost. Soft costs are calculated over the total construction cost. Also, the unallocated contingency is calculated as 10% over the total construction cost. Hence, the total project cost is the sum of total construction cost, RoW costs, unallocated contingency and soft costs.

## 3.3 Methodology

B7-Revised A-2 Station	SBSALA A-2 Station	"Apples-to-Apples"	Comment
Sound Transit cost estimating methodology adopted.	As outlined in SBSALA final report	Yes	

Table 5 - Comparison with Sound Transit DEIS and SDEIS methodology

### 3.3.1 Consistency with previous SBSALA study

The objective of this cost estimate was to update the SBSALA A-2 Station estimate to reflect the design development described in TM03 A-2 Station Concept Report and adhere to Sound Transit's cost estimating practices. As a result, some of the cost elements reflect those in SBSALA, while others differ.

The following two sections describe key elements of methodology made by the project team in updating the SBSALA study cost estimate.

### **3.3.1.1 B7-Revised A-2 Station cost estimating assumptions consistent with SBSALA**

- Estimate excludes abandonment of existing South Bellevue Park & Ride.
- Guideway and Track elements (Category 10) are similar because the LRT station is at the same track elevation for each option.
- A station mezzanine is provided beneath LRT platform and a pedestrian bridge connects the garage to the station.
- Roadway work along Bellevue Way SE between I-90 ramps and the existing South Bellevue Park-and-Ride is included.
- Street scaping is included for Bellevue Way SE, for 113th Avenue SE, and for SE 30th street.
- The existing pumping station will not be impacted by the A-2 Station.
- Utility costs are similar. Information for utility systems is given in the TM03 report.

### **3.3.1.2 B7-Revised A-2 Station cost estimating assumptions that are different from SBSALA:**

- For design and allocated contingency, SBSALA uses a constant contingency of 40% added to Sound Transit's unit cost. This differs from Sound Transit's assumption of variable contingency as mentioned in 3.2.1. The project team uses a variable contingency of design allowance average 21% and allocated contingency average 16%
- SBSALA does not include cost of the aerial structure at the station in their cost estimate. This cost has been included in the project team's estimate (\$7m).
- The base cost for "Aerial station, stop shelter, mall, terminal, platform" has been inferred from the B3 segment's South Bellevue Way station. This station has a center-loaded platform. SBSALA has a side-loaded platform design and includes a "side-loaded platform adder" lump sum cost (\$7.14m). The project team's estimate has a center-loaded platform, so the additional sum does not apply.
- The "Station Site Facilities – Parking Garage" (Estimate code SF 20) per-space lump sum cost includes most of the cost elements of the parking garage except elevators. Costs of parking garage elevators are unclear in SBSALA. The project team's costs for parking garage elevators are included in SCC point 20.07.
- The project team's design for the parking garage uses spread footings instead of pile foundations, and this cost is included in the per-space cost of the parking garage. Therefore, the cost for pile foundations is deducted from the

SBSALA per-space cost. The cost for spread footings is added as a separate line item in the project team's estimate.

- “Excavation, Shoring, Ventilation adder” (SCC point 20.02) in SBSALA includes a lump sum cost for excavation, shoring, and ventilation for the parking garage. The project team adds detailed costs for excavation and fill in “earthwork” (SCC point 40.01), shoring is added as a lump sum line item in “Automobile parking multi-story structure” (SCC Point 20.06) and the project team's A-2 parking garage design does not include a basement; therefore, the ventilation adder cost is excluded.
- The SBSALA lump sum cost per space of parking garage (Estimate code SF 20) includes 11900 cubic yards of excavation. This volume is deducted from the project team's excavation quantity for the parking garage, to avoid double counting.
- The unit cost for storm water piping used by SBSALA (\$1396/RF) than that in Sound Transit's unit cost report (\$200/RF), hence this was modified. The cost difference being \$1196/RF.
- The project team's environmental mitigation allowance was included within the estimate as calculated by the project teams sub-consultant Herrera Inc. SBSALA does not include their environmental mitigation cost in their cost estimate. SBSALA has mitigation cost provided as additional costs.
- Retaining walls included in SBSALA's estimate are CIP. The project team's design proposes MSE walls. These are used at the roadway loops on either side of the roadway bridge.
- The roadway bridge for the project team's estimate has an area of 5,180 square feet, while that in SBSALA has an area of 18,020 square feet.
- The quantities differ for the pedestrian bridge, because the bridge in the project team's design is longer.
- Roadway reconstruction and modification quantities are different for both estimates, based on the respective designs.
- The project team's design has a bus ramp, which is part of the A-2 Transit Center (\$3m), but which was not part of SBSALA.
- “1% for Art” allowance is included in the project team's estimate, it is not included in SBSALA.
- RoW costs for SBSALA were provided by the city of Bellevue and are in 2010 dollars. The RoW costs for the project team's estimate are 2007 dollars and were provided by Sound Transit.
- In the project team's estimate, the included soft costs are calculated in a manner consistent with the Sound Transit methodology. SBSALA uses a different method to calculate soft costs.
- To be consistent with Sound Transit's estimating methodology; the project team's estimate excludes, concept-level design risk, financing and administration costs, and includes overhead, and profits on construction work.

## 4 Comparison with SBSALA estimate

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The tables below provide a direct comparison of costs developed for this study against those presented in SBSALA. Comments are provided for any significant differences.

The detail estimates are formatted according to the FTA Standard Cost categories (SCC) 10 through 60, consistent with Sound Transit. Only the subcategories within each category that have quantities and costs are shown in the estimate detail for clarity.

Cat	Sub-point	Description	B7-Revised A-2 Station	SBSALA A-2 Station	Delta (B7-Revised less SBSALA)	Explanation
10	<b>GUIDEWAY &amp; TRACK ELEMENTS</b>					
	10.04	Guideway: Aerial structure	\$ 6.99	\$ -	\$ 6.99	The project team's A-2 station design has a central platform, hence a Twin-Sgl. Precast box girder included in the estimate. SBSALA has not included cost for the aerial structure in their estimate
20	<b>STATIONS, STOPS, TERMINALS, INTERMODAL</b>					
	20.02	Aerial station, stop, shelter, mall, terminal, platform	\$ 30.71	\$ 42.97	\$ (12.27)	The project team's A-2 design has a center platform and so does not include side-loaded platform adder (\$10m)
	20.06	Automobile parking multi-story structure	\$ 46.67	\$ 40.24	\$ 6.44	SBSALA has added excavation, shoring & ventilation as a LS cost, the project team has detailed the cut/fill costs in section 40.01. The project team cost includes 50 additional parking spaces, spread footings (instead of pile foundation) and a transit center
	20.07	Elevators, escalators	\$ 2.58	\$ 0.85	\$ 1.73	SBSALA has considered 1 escalator and 1 elevator; The project team's design includes 4 elevators for the garage, 2 escalators & 2 elevators in station.  The project team has included pedestrian vertical circulation costs only in this section  SBSALA included 'Roadway bridge' (\$10.09m) and 'pedestrian bridge' (\$0.98m) here, the project team has included the same in cost sections 40.07 and 40.06 resp. to be consistent with ST
30	<b>SUPPORT FACILITIES: YARDS, SHOPS, ADMIN BLDGS</b>					

Cat	Sub-point	Description	B7-Revised A-2 Station	SBSALA A-2 Station	Delta (B7-Revised less SBSALA)	Explanation
40	<b>SITEWORK AND SPECIAL CONDITIONS</b>					
	40.01	Demolition, Clearing, Earthwork	\$ 8.11	\$ 0.88	\$ 7.23	The project team has included detailed excavation & fill costs, while SBSALA has included LS cost for earthwork in 20.06
	40.02	Site Utilities, Utility Relocation	\$ 0.24	\$ 0.71	\$ (0.48)	The project team uses ST's categorical contingency which is higher than SBSALA's contingency. Also, Arup uses ST's unit cost for storm water piping, unlike SBSALA
	40.04	Environmental mitigation, e.g. wetlands, historic/ archeologic, parks	\$ 1.23	\$ -	\$ 1.23	The project team mitigation costs provided by Herrera Inc. Project team adds ST's categorical contingency over the base cost. SBSALA estimate does not include mitigation costs
	40.05	Site structures including retaining walls, sound walls	\$ 0.89	\$ 1.26	\$ (0.37)	MSE Retaining walls considered by the project team are roadway retaining walls. Difference in retaining wall heights and quantities is design related difference
	40.06	Pedestrian / bike access and accommodation, landscaping	\$ 2.22	\$ 0.98	\$ 1.24	The project team design has a longer pedestrian bridge than SBSALA  Landscaping cost included in SF20 and ST20 costs
	40.07	Automobile, bus, van accessways including roads, parking lots	\$ 17.01	\$ 17.43	\$ (0.43)	Bus ramp designed by project team not an element of SBSALA  The project team's roadway reconstruction is greater than SBSALA  SBSALA roadway bridge larger than project team's.

Cat	Sub-point	Description	B7-Revised A-2 Station	SBSALA A-2 Station	Delta (B7-Revised less SBSALA)	Explanation
						The project team has more roadway modifications than SBSALA
	40.08	Temporary Facilities and other Indirect Costs During Construction	\$ 1.18	\$ -	\$ 1.18	SBSALA has not included '1% for art' in their estimate; the project team follows ST by including the same for SCC points 10 through 50
<b>50</b>	<b>SYSTEMS</b>					
	50.02	Traffic signals and crossing protection	\$ 0.73	\$ 0.49	\$ 0.24	The project team design has an additional half-signal
	50.05	Communications	\$ 0.86	\$ 0.87	\$ (0.01)	The project team uses ST's categorical contingency approach which is lower than SBSALA's contingency
	50.06	Fare collection system and equipment	\$ 0.36	\$ 0.36	\$ (0.01)	The project team uses ST's categorical contingency approach which is lower than SBSALA's contingency
<b>60</b>	<b>ROW, LAND, EXISTING IMPROVEMENTS</b>					
	60.01	Right of Way	\$ 14.03	\$ -	\$ 14.03	SBSALA does not include ROW cost in their construction cost, project team has included ROW cost in 2007 dollars per ST
	<b>ESTIMATED COST OF CONSTRUCTION</b>		<b>\$ 133.80</b>	<b>\$ 107.04</b>	<b>\$ 26.75</b>	SBSALA total does not include mitigation & ROW costs
<b>70</b>	<b>VEHICLES</b>					
<b>80</b>	<b>PROFESSIONAL SERVICES</b>					
<b>90</b>	<b>UNALLOCATED CONTINGENCY</b>					
	<b>SEGMENT TOTAL WITH DESIGN ALLOWANCE &amp; ALLOCATED CONTINGENCY</b>		<b>\$ 133.80</b>	<b>\$ 107.04</b>	<b>\$ 26.75</b>	SBSALA total does not include mitigation & ROW costs

Cat	Sub-point	Description	B7-Revised A-2 Station	SBSALA A-2 Station	Delta (B7-Revised less SBSALA)	Explanation
		<b>SEGMENT TOTAL WITH DESIGN ALLOWANCE &amp; ALLOCATED CONTINGENCY</b>	\$ 133.80	\$ 107.04	\$ 26.75	From table above
		RoW	\$ 14.03	\$ -	\$ 14.03	From sub-point 60 in table above
		Construction Cost without ROW Costs	\$ 119.77	\$ -	\$ 119.77	
		Change order contingency (10%)	\$ 11.98	\$ -	\$ 11.98	
		<b>TOTAL CONSTRUCTION COST</b>	\$ 131.75	\$ 107.04	\$ 24.70	SBSALA total does not include change order contingency
		ROW Costs	\$ 14.03	\$ -	\$ 14.03	SBSALA total does not apply Agency Administration fee to Total Construction Cost, unlike ST
		Construction management (8.5%)	\$ 11.20	\$ 9.10	\$ 2.10	
		Environmental/PE (5%)	\$ 6.59	\$ 5.35	\$ 1.24	
		Final Design, Specs, Permits (12.5%)	\$ 16.47	\$ 13.38	\$ 3.09	
		Agency Administration (6%)	\$ 10.80	\$ 1.67	\$ 9.13	
		<b>TOTAL SOFT COSTS</b>	\$ 45.06	\$ 29.50	\$ 15.55	
		Unallocated Contingency(10%)	\$ 13.17	\$ 10.70	\$ 2.47	SBSALA has included as Construction contingencies (10% of estimated construction cost)
		SBSALA ROW	\$ -	\$ 13.20	\$ (13.20)	SBSALA ROW in 4th Qtr 2010 \$
		SBSALA environmental mitigation	\$ -	\$ 4.56	\$ (4.56)	Total environmental mitigation by ESA Adolfson
		<b>TOTAL COST: LOW WITHOUT PROJECT RESERVE</b>	\$ 204.01	\$ 165.01	\$ 38.99	
		<b>TOTAL COST: HIGH WITH PROJECT RESERVE</b>	\$ 234.61			Project Reserve is 15%

The table above summarizes the total project cost (including soft costs and total construction cost), compares findings against those in the SBSALA, and provides commentary on approach.

## 5 Conclusions

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In this analysis, the SBSALA estimate is updated to reflect the design changes to the A-2 Station concept, and also to be consistent with Sound Transit's estimating methodology and structure. Costs for A-2 Station are based on the project team's A-2 Station Concept Report (TM03) and the drawings therein, and uses Sound Transit's composite unit costs. Additional line items are added to account for development of the design.

The estimated total project cost (without project reserve) for the B7-Revised A-2 Station, including a 1450-space park-and ride-building, is \$204.01m.

For comparison purposes with the SBSALA cost estimate, when the original cost estimate of \$165m is adjusted to follow more closely with Sound Transit's methodology for multiple factors – the inclusion of change order contingency, RoW, mitigation costs in the construction costs (rather than as costed separate line items), and the approach to soft costs – the SBSALA revised project cost would be approximately \$190m.